

USSR

LEBEDEV, D. V., Metallovedeniye, No 5, May 70, pp 77-79

methods for studying low-temperature strength with the purpose of being able to compile experimental data was noted by V. N. POLISADOV, D. V. LEBEDEV, and others.

A method and testing unit was developed by V. T. TROSHCHENKO, V. I. POKROVSKIY, and V. V. POKROVSKIY. A pneumatic impact tester for testing at 4.5°K was developed by V. YA IL'ICHEV, N. M. NOVIKOV, V. I. STAROV, and V. K. CHERKASHIKH. The designs of several testing devices were presented by V. M. BONCIUK, N. N. GRINBERG, and others. A method for evaluating the dynamic modulus of elasticity and vibration damping was presented by M. A. KRISHTAL, L. YE. ENSHTEYN, E. G. TIEBNSKIY, and N. N. NIKOL'SKIY.

O. A. BAKSHI, A. G. KUKINA, A. N. MONOSHKOVA, YU. I. ANISENOVA, G. A. STEPANOVA, B. A. KURANOVA, A. I. KONOVALOV, and E. A. KIVI reported on a method for evaluating the reliability of weld joints at low temperatures.

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USSR

UDC 531.352

LEBEDEV, D. V. (Kiev)

"Dynamics of the Angular Movements of a Nonsymmetrical Solid in the Process of Orientation"

Kiev, Prikladnaya Mekhanika, No 4, Apr 73, pp 87-92

Abstract: Results are presented of an investigation of the movement of a nonsymmetrical solid in the process of orientation. It is assumed that the solid, rotating at a constant angular velocity with respect to the axis of the maximum moment of inertia, is acted upon by a controlling moment and a damping moment. It is shown that in the process of controlled movement, the solid performs attenuating oscillations with respect to a direction that is not coincident with the assigned direction. The value of the angle between the assigned direction and the angle of rotation of the object is determined by the distribution of the masses in the solid. 3 figures. 5 references.

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USSR

UDC: 621.315.592

KOLOMIYETS, B. T., LEBEDEV, E. A., and SMORGONSKAYA, E. A.

"The Mechanism of Breakdown in Chalcogenidic Glasses"

Leningrad, Fizika i tekhnika poluprovodnikov, № 10, 1972, pp 2073-  
2075

**Abstract:** Noting that some experimental data in the electrical behavior of layers of chalcogenidic glass differ from conclusions of the theory of thermoelectronic breakdown, the authors offer additional data on the subject of breakdown in this type of material in the form of curves for the voltage in the breakdown field and the field itself as functions of the temperature. These curves were obtained by measurements of thick layers of the material, with the composition  $\text{Si}_{1.2}\text{Ge}_{1.0}\text{As}_{3.0}\text{Te}_{4.8}$ , in which thermal breakdown was observed at room temperature and constant voltage. The measurements were made in the temperature interval of 130 to 370° K, on specimens 60 and 35  $\mu$  thick. The curves show that thermal breakdown becomes electronic breakdown with reduced power dissipation at low temperatures. It is also determined that the breakdown field is about the same for thin as for thick layers when measured at low temperatures and short pulses.

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USSR

UDI 621.315.592

ANDREYEV, A.A., ALEXSEYEV, V.A., LEBEDEV, E.A., KAMADALIYEV, M., MELIKH, B.T.,  
REGEL', A.R., RYZHKOV, YU.P. [Institute Of Semiconductors, Academy Of Sciences,  
USSR, Leningrad]

"Switching Effect In Fluid Semiconductors"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 661-666

**Abstract:** The switching effect is studied in a number of fluid semiconductors and the voltampere characteristics are shown for fluid Se ( $410^{\circ}$  C), solid and fluid  $Sb_2S_3$  ( $460$  and  $570^{\circ}$  C) and  $As_2Se_3$  up to softening temperature ( $170^{\circ}$  C) and above ( $210^{\circ}$  C). The circuit for measuring the voltampere characteristics of the switching effect is described. The high stability is emphasized of the switching effect in Se and  $Sb_2S_3$  over a wide range of temperatures. An illustration is presented of relaxation oscillations in fluid selenium with a frequency of 10 kHz at a temperature of  $230^{\circ}$  C. The results of the observations show that the switching effect is also found in fluid semiconductors. The effect is consistently observed over a wide range of temperatures. The effect is observed for materials with various values of the absolute conductivity from  $10^{-9}$  (Se) to  $10^{-1}\text{ ohm}^{-1} \times \text{cm}^{-1}$  ( $Sb_2S_3$ ). By a combination of the relationships revealed, the switching effect at high temperatures carries a mainly thermal character. This statement,

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ANDREYEV, A.A., et al, Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972,  
pp 661-666

however, does not exclude the electron mechanism as initiating the switching process. The studies of fluid semiconductors show that a structural phase transition is not compulsory for manifestation of the effect. ¶ Fig. 9 ref. Received by editors, 14 July 1971.

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USSR

UDC 632.937(047)

SMETNIK, A. I., Candidate of Biological Sciences, and LEBEDEV, G. I.,  
Main Administration of Plant Protection, Ministry of Agriculture  
USSR

"Biomethod Seminar"

Moscow, Zashchita Rasteniy, No 4, 1970, pp 61-62

**Abstract:** The seminar was held Jan 12-16. The Chairman, I. A. Churayev, noted the progress made in past years in the application of biological agents for plant protection. V. A. Shchepetil'nikova and N. M. Tron' discussed the use of trichogramma. G. A. Beglyarov talked about combatting the spider mites on cucumbers. Introduction and acclimatization of the parasites of *Pseudaphyphus malinus*, chalcid parasite, and coccophagus was reported by N. M. Shutova, while microbiological control of pests was discussed by N. S. Fedorinchuk. O. A. Aleshina reported on the production of biopreparations and antibiotics, while the use of viruses was covered by V. Yu. Dule. Protection of fruit cultures was discussed by B. I. Adashkevich,

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SMETNIK, A. I., et al, Moscow, Zashchita Rasteniy, No 4, 1970,  
pp 61-62

who pointed out the need for proper selection of insecticides.  
The use of biological control of weeds was the subject of O. V.  
Kovalev and Ts. G. Bronshteyn, while G. V. Guisev and V. A. Shap  
speculated on the possibilities of further studies in this area.  
M. A. Kozhushko, P. I. Shchichenkova, and I. A. Varenika discussed  
organizational aspects of biological control of agricultural pests.

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USSR

UDC 669.295.41

SEREBRYAKOVA, A. V., LEBEDEV, G. N., STASHEKO, V. I., BAKHIREVA, L. D.

"Studies on Obtaining Titanium Tetrachloride Purified from Vanadium"

Tr. In-ta metallurgii. Ural'sk. fil. AN SSR (Works of the Institute of Metallurgy. Urals Branch of the USSR Academy of Sciences), 1970, vyp. 22, pp 23-27 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G231)

Translation: Purification of  $TiCl_4$  with respect to V is possible in a condensation system by introducing  $H_2$ , S or  $H_2$  and S simultaneously. Purification is most complete with a S to  $H_2$  ratio close to stoichiometric for  $H_2S$ . At a temperature of  $200^\circ$ , the interaction of  $VOCl_3$  takes place with the formation of  $VOCl_2$ , and at  $500^\circ$ , with the formation of  $VOCl$ . The article contains 1 illustration, 4 tables, and an 8-entry bibliography.

- END -

5915  
CSO: 1842-W

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Titanium

USSR

UDC 660.295.05

STARSHENKO, V. I., VOLYNSKAYA, M. P., and LEBEDEV, G. N.

"The State of Analytic Control in Cleaning Titanium Tetrachloride"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 54-60

Translation: Methods of analyzing titanium tetrachloride are systematized. The limits of sensitivity in determining impurities in titanium tetrachloride are used to evaluate their effect on increasing the hardness of titanium sponge. It is shown that the coefficient of analytical indeterminacy as to the composition of cleaned titanium tetrachloride increases the depth of its cleaning. The controlled impurities in the cleaned titanium tetrachloride do not characterize the qualities of cleaning, while the sensitivity in determining the total content of oxygen, nitrogen, carbon, sulphur, and hydrogen does not meet requirements for depth of cleaning titanium tetrachloride. The necessary depth of cleaning and limit to sensitivity in defining impurities is  $1 \cdot 10^{-4}$  percent (by mass). Three tables and 13 bibliographical entries.

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USSR

UDC 669.295.055.2

GALITSKIY, N. V., KONDRATENKO, A. V., LEBEDEV, G. N., VIKTAMANYUK, V. I., and  
PISAREV, L. V., PECHENIK, T. S.

"Pilot Plant Study of Production of Pigment Titanium Dioxide by Burning  
Titanium Tetrachloride in a Hydrogen Flame"

Sb. tr. Vses. n.-i. i proyektn. int titana [Collected works of All-Union  
Scientific-Research and Planning Institute for Titanium], 6, 1970, 47-54,  
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract  
No. 1 G189 by the authors).

Translation: Results are presented from pilot plant studies of the  
production of pigment  $TiO_2$  in a reconstructed installation at the  
Kaluga Chemical-Metallurgical Combine. The possibility is demonstrated  
of producing  $TiO_2$  by burning  $TiCl_4$  in an air-hydrogen flame on equipment  
used for production of Aerosil, although the individual units and  
apparatus require considerable reconstruction. The  $TiO_2$  specimens  
produced have good whiteness, dispersion, covering power and oil number,  
but high Cl content, low pH of aqueous extract and rutile content below  
the requirement of the state standard. 2 figures; 2 tables.

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USSR,

UDC 669.295.046.43

STARSHENKO, V. I., VOLYNSKAYA, M. P., and LEBEDEV, G. N.

"Status of Analytic Testing of Purification of Titanium Tetrachloride"

Sb. tr. Vses. n.-i. i proyektn. in-t titana, [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 54-61, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No. 1 G180 by the authors).

Translation: Methods of analysis of  $TiCl_4$  are systematized. The influence of impurities in  $TiCl_4$  on the increasing hardness of Ti sponge is estimated on the basis of the limits of sensitivity for determination of the impurities. The analytic uncertainty factor in the composition of purified  $TiCl_4$  exceeds the depth of purification. The impurities tested in purified  $TiCl_4$  do not characterize the quality of purification, and the sensitivity of determination of the total content of O, N, C, S, and H does not correspond to the requirements for depth of purification of  $TiCl_4$ . The required depth of purification and limit of sensitivity of the determination of impurities is  $1 \cdot 10^{-4}$  (by mass). 3 tables; 13 bibliog. refs.

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USSR

UDC 621.395.385.4

LEBEDEV, G. V., TRUBITSYNA, G. V., KHAYTMAN, Ye. N., Dzheznul Radio Plant

"A Multibeam Radio Channel Simulator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsya, Tovarnyye Znaki,  
No 5, Feb 72, Author's Certificate No 327642, Division II, filed 18 Mar 70,  
published 26 Jan 72, pp 174-175

Translation: This Author's Certificate introduces: 1. A multibeam radio channel simulator containing n unit-beam channels, each of which is made in the form of a parallel circuit made up of a regular-component subchannel consisting of a regular-component level regulator, a subchannel for the random cophase component consisting of an amplitude modulator for the co-phase component and a random-process generator, and a quadrature-component subchannel consisting of a phase shifter, random process generator and quadrature-component amplitude modulator. The simulator also contains a unit-beam channel adder and an output converter. As a distinguishing feature of the patent, the device is designed for simulating a wide range of values of ionospheric turbidity up to the limits observed in actual radio channels. The signal spectrum generator in the low-frequency region

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LEBEDEV, G. V. et al., USSR Author's Certificate No 327622

is connected through the taps of low-frequency delay lines to the frequency converter. The output of the frequency converter is connected to the input of the regular-component subchannel. 2. A modification of this simulator distinguished by the fact that provision is made for simulating Doppler shifts as each of the beams is formed. For this purpose, a multiplier is connected between the adder and the beam attenuator.

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USSR

UIC 548.736

KAPSHUKOV, I. I., VOLKOV, Yu. F., MOSKVICHÉV, Ye. P., LEBEDEV, I. A., and YAKOVLEV, G. N., Scientific Research Institute of Atomic Reactors, Mólekovsk

"Crystal Structure of Uranyl Tetranitrates"

Moscow, Zhurnal Strukturnoy Khimii, Vol 12, No 1, Jan-Feb 71, pp 94-98

**Abstract:** The structure of complex uranyl compounds of the type  $M_2[UO_2(NO_3)_4]$  was studied, where  $M = NH_4$ , Rb, and Cs. All the compounds are isomorphous, monoclinic. The structure of ammonium and rubidium tetranitrocrownylates was elucidated by means of three-dimensional diffraction data; the cesium complex was studied by projection. The structure consists of cations  $M^+$  and complex anions  $[UO_2(NO_3)_4]^{2-}$ . In the centrally symmetric anion complex two nitrate groups are attached to the uranium atom bidentantly and the other two -- monodentantly. In this fashion a hexacoordinated equatorially planar system of oxygen atoms around the uranium is formed. The U-O bond is shortened, being 1.78, 1.77, and 1.85 Å for  $NH_4$ , Rb, and CS respectively.

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**Instruments and Equipment**

USSR

UDC 615.471:612.886-088.7

VLASOV, A. I., LEREDEV, I. G., STELETSKAYA, R. A., and MUSEYEV, S. N., Clinic of Ear, Nose and Throat Diseases, Izhevsk Medical Institute

"An Electrically Powered Rotating Chair for Recording Some Motor and Automatic Responses of the Vestibular Analyzer"

Moscow, Vestnik Otorinolaringologii, No 6, 1972, pp 75-77

**Abstract:** A Baranyi chair is connected to a 3-phase 2-speed a.c. electric motor (120 v, 3000 and 1500 rpm) with a reducer to permit the chair to rotate at 30 and 15 rpm and correspondingly slower acceleration and deceleration. Four switches are used to change the direction and rate of rotation. A set of silvered rotating contact rings is used as a collector ring along with silvered contact clips to reduce the distortion of the signals. On the back of the chair is a terminal block with cells for the electrodes and a graduate is used to determine the deviation. The apparatus can be used for continuous, simultaneous recording of up to 20 different somatic and autonomic reactions, including spontaneous and induced nystagmus in the vertical and horizontal planes, position and optokinetic nystagmus along with the pulse, ECG, EEG, and respiration. Schematics and a photograph of the chair are included.

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UDC 669.822:621.039.5

USSR

KAZACHIKOVSKIY, O. D., LEBEDEV, I. G., SYCH, A. P., MATVEYEV, P. P.

"Formation of the Structure of the Core of Fuel Elements Made of Metallic Uranium During the Irradiation Process"

Radiatsion. fiz. tverd. tela i reaktornove materialoved. -- V sb. (Radiation Solid State Physics and Reactor Material Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 203-208 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 41827)

Translation: Metallic uranium (0.21% content of admixtures) was irradiated to 2% burn-up in OKh16N15M8 steel cans 4-5 mm in diameter with walls 0.35-0.4 mm thick. The volume compensating for the swelling was 15-30% (filling with He). The mean temperature of the cans was 450-600°, and the initial fuel temperature was 650-900°. On irradiation, the fuel completely filled the free volumes. The can diameter did not change in any case. There are 2 illustrations and a 3-entry bibliography.

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1/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--SWELLING OF HIGH TEMPERATURE OXIDE FUEL -U-

AUTHOR--(03)-LEBEDEV, I.G., KUZMIN, V.I., PISKUN, A.S.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 18(4), 351-2

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NUCLEAR FISSION, URANIUM OXIDE, PLUTONIUM, SHELL, NUCLEAR FUEL ELEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/0592

STEP NO--UR/0089/70/028/004/0351/0352

CIRC ACCESSION NO--AP0137677

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137677  
ABSTRACT/EXTRACT--(U) GP-0 ABSTRACT. THE ESTN. OF THE CONTRIBUTION OF  
VARIOUS TYPES OF FISSION FRAGMENTS IN UO SUB2 AND PUO2 SUB2 WITH FUEL  
ELEMENT SURFACE TEMP. AT 800-1300DEGREES TO THE TOTAL VOL. CHANGE AT  
BURN UP TO 9.2PERCENT REVEALED THAT THE MAX. CONTRIBUTION OF SOLID  
FISSION FRAGMENTS WAS 0.4PERCENT OF THE VOL. PER EACH 1PERCENT OF  
BURNUP, THE MAIN CONTRIBUTION TO THE TOTAL VOL. CHANGE BEING THAT OF THE  
GASEOUS FISSION FRAGMENTS.

UNCLASSIFIED

USSR

VOLKOVITSKIY, V. R., and LEBEDEV, I. K.

"Remote Displacement Measuring Device"

USSR Authors' Certificate No 356464, Cl. G 01d 5/39, filed 9 Nov 70, published 23 Oct 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 32, 1972, p 103)

**Abstract:** The device measures the displacement of a moving object, e.g. parts of the human body during catapult ejection. It contains a television camera tube, a video pulse shaper amplifier connected to the tube output, a horizontal scanning generator connected to the deflection system of the tube, a control flip-flop, one of whose inputs is connected to the amplifier output and the other to the horizontal scanning generator, a device counting the number of filling-frequency pulses connected to the control flip-flop, a filling-frequency pulse generator connected to the input of the counter, and a recorder of the counter readings in digital form. To make it possible to measure the relative displacement of two arbitrarily moving points of an object, the device has a vertical scanning generator connected to the tube

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USSR

VOLKOVITSKIY, V. R., and LEBEDEV, I. K., USSR Authors' Certificate No 356464  
deflection system, a complementing flip-flop whose input is connected to the  
amplifier, and a line counter, whose input is connected to the horizontal  
scanning generator and its control circuit to the complementing flip-flop  
output. The filling-frequency pulse counter is made reversible, and its  
counting direction control circuit is connected to the control flip-flop out-  
put.

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UDC 616.989.25-022.395.42-034.4(470.51)

USSR

KUCHERUK, V. V., KORENBERG, YE. I., PANFILOVA, S. S., SHUMEROVA, T. G., SMIRNOV,  
A. V., and LEBEDEV, I. P. Laboratory of Medical Zoology, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Sciences USSR,  
Moscow, and Republic Sanitary Epidemiological Station, Udmurt ASSR, Izhevsk

"Recent Results in the Control of Tickborne Encephalitis in the Udmurt ASSR"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40,  
No 3, May/Jun 71, pp 275-283

**Abstract:** The annual incidence of tickborne encephalitis is high in the Udmurt ASSR. In some years, it was 10% of all recorded diseases. Data on the disease as it occurred from 1956 to 1965 were studied. The results of these studies led to a sharp reduction in incidence of the disease in the Udmurt ASSR. Statistical data on the disease level are presented in bar graphs for various regions over the 10-year period. Various forests in the area were characterized by their degree of epidemic danger, based on preliminary mapping of the occurrence and recurrence of infections. Subsequently, tick-extermination areas (amounting to 7% of the entire forest lands) were set aside and ticks eliminated by aerial spraying. Gamma-globulin prophylaxis and vaccination are recommended for the population living in areas in which tick eradication is difficult to achieve or impractical.

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UDC 533.013.12

USSR

KURKIN, V. I., Docent, Candidate of Technical Sciences /deceased/, Moscow Institute of Electronic  
I. V., Doctor of Technical Sciences /deceased/, Moscow Institute of Electronic  
Machine Building

"A Comparative Evaluation of the Aerodynamic Resistance of a Filament and a  
Strip During Their Movement in a Viscous Medium"  
Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy--Mashinostroeniya, No 10,  
1973, pp 24-26

Abstract: A calculation procedure is presented, which permits a comparative evaluation to be made of the forces or aerodynamic resistance of a round filament and a flat strip during their movement in a viscous (aerial) medium. By means of this method, a more correct approach can be made to selection of type and design of the flexible element in mechanical systems with moving filaments and strips. 2 references.

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UDC: 621.373.2.029.04.001.5

USSR

LEBEDEV, I. V., MESHKICHEV, V. N.

"On the Relationship Between the Limiting Amplitude of the Constant Magnetic Field of Magnetron Oscillators and the Threshold Power of K-Type Amplifiers"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 12, Dec 70, pp 2574-2579

Abstract: The authors discuss the limitation of self-excitation of magnetron oscillators with increased induction of the constant magnetic field; a comparison is made with the minimum input signal of K-type amplifiers. The existence of a boundary of the zone of magnetron emission is experimentally established.

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UDC 621.385.601 (086.8)

USSR

LEBEDEV, I.V. [Mosk. energ. in-t--Moscow Power Institute]

"Electron Frequency Multiplier"

USSR Author's Certificate No 256881, filed 27 June 68, published 1 Sept '70 (from  
RCh--Elektronika i yeye primeneniya, No 2, February 1971, Abstract No 2A196P)

Translation: The proposed microwave band frequency multiplier contains two co-axial ring-shaped resonator systems not coupled by high-frequency, and cylindrical and conical electrodes. With the object of assuring high multiplicity of the increase of frequency and a rise of efficiency, the number of resonators of the second (output) resonator system exceeds by a whole number of times the number of resonators of the first (input) system, while the resonance frequency of the second system exceeds by the same number of times the resonance frequency of the first system.

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MEDICINE  
Aerospace Medicine

UDC 577.391:612.017.1

USSR

LEBEDEV, K. A., and PETROV, R. V., Institute of Biomedical Problems and  
Institute of Biophysics, Ministry of Health USSR

"Immunological Problems of Closed Spaces and Gnotobiology"

Koscow, Uspekhi Sovremennoy Biologii, No 2, 1971, pp 235-252

**Abstract:** Conditions in spacecraft are conducive to the development of a fundamentally new and different microflora characterized by a simplification of the species composition, increase in number of mutations, and tendency toward an increase in the total number of microbial units per unit of volume. The level of immunity is certain to fall on long-duration flights because of relative inactivity and insufficient antigenic stimulation. This enhances the danger of infections of unusual type and severity occurring during flight and of "microbial shock" arising upon the return to earth. Resistance to infections can be increased or complications prevented by regular, continuous introduction into the body of pure antigens or by vaccination with live microorganisms. The simplest approach is via enteral immunisation which can be achieved by adding a variety of antigens to the cosmonauts' diet. Prior to flight their microflora can be regulated by using the principles developed in research on germfree animals.

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USSR

UDC 611.45+611.41]-018.068

CHAKHAVA, O. V., LEBEDEV, K. A., and TSATSENKINA, T. E., Laboratory of General and Radiation Immunology, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR; Institute of Medical Biological Problems, Ministry of Health USSR

"Morphological and Functional Characteristics of Lymphoid Organs and Adrenal Glands in Germ-Free Guinea Pigs"

Leningrad, Arkhiv Anatomii, Cistologii, i Embriologii, Vol 58, No 6, Jun 70,  
pp 28-34

Abstract: The effect of microflora on the morphological and functional condition of lymphoid tissue and of the adrenal glands was studied. Germ-free guinea pigs were obtained on the last day of pregnancy by hysterectomy, were maintained in special polyvinyl chloride isolation chambers on a sterilized diet and raised under sterile conditions for 16 days. They were then given a thorough microbiological check once or twice each week. Twenty-six germ-free (and more than 100 ordinary animals) were used. Five sterile guinea pigs were subjected to nonpathogenic, *Staphylococcus albus* from the 5-6th week of life. After 1-2 months the animals were killed. A pure culture of *Staphylococcus albus* in the feces of these animals reached 2-10 billion cells per 1 g of feces. In  
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USSR

CHAKHAVA, O. V., et al., Arkhiv Anatomii, Cistologii, i Embriologii, Vol 58,  
No 6, Jun 70, pp 28-34

germ-free animals, popliteal and ilioicaecal lymph nodes and Peyer's patches were much smaller and contained much fewer globulin-producing cells, and 20-40 times fewer secondary follicles, as compared to controls. However, in germ-free guinea pigs, the number of globulin-producing cells in the submucosa of the intestine was somewhat below that of normal animals. The spleen tissue of germ-free guinea pigs was of normal relative weight. Considerable adrenal hypertrophy was found in the test animals, and their excretory steroid level and the ascorbic acid content in the adrenal glands were high.

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USSR

UDC 669.245'26'293'2''28:620.18:620.17

BELINSKAYA, L. A., BRAUN, M. P., IONKINA, Ye. M., LEBEDEV, K. P., and  
KHIL'CHEVSKAYA, T. V.

"Structure, Phase Composition, and Certain Properties of Cast Complex Nickel-Base Alloys With Niobium"

Metallofizika. Resp. mezhved. sb. (The Physics of Metals. Republic Inter-departmental Collection of Works), 1971, vyp. 33, pp 102-107 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 11791 by authors)

Translation of Abstract: A study was made of structural changes and certain properties of Ni-Cr-base alloys with a large Nb content (7.5-8%) when alloyed with tungsten (3%) and molybdenum (5.10%). The alloys were smelted in open induction furnaces, and specimens were made according to smelted models. Phase composition was studied after isolation of precipitates in specially selected electrolytes. The investigation of microstructure was made on as-cast specimens after heat treatment consisting in hardening from 1200° with subsequent tempering at 900° for 16 hours. Four illustrations. Three tables. Bibliography with seven titles.

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1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--DETERMINATION OF THE HYDROGEN CONTENT IN COPPER ALLOYS -0-

AUTHOR-(02)-SHEMETEV, G.F., LEBEDEV, K.P.

COUNTRY OF INFO--USSR

SOURCE--LITERATURA PROIZVOD. 1970, 131, 29-30

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL ANALYSIS, HYDROGEN, COPPER ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/1923

STEP ID--UR/0128/70/000/003/0028/0030

CIRC ACCESSION NO--AP0132185

CONTACT SHEET

Z/2 014

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132185

ABSTRACT/EXTRACT--(U) CP-6- ABSTRACT. AN INSTRUMENT IS DESCRIBED FOR DETN. OF H IN Cu ALLOYS IN WHICH UP TO 20 SPECIMENS CAN BE LOADED AT ONE TIME AND THEN THROWN ONE BY ONE INTO A SN BATH AT 750DEGREES KEPT UNDER VACUUM, (1.0-1.5) TIMES 10 PRIME NEGATIVE3 MM HG, WHERE THE TESTED ALLOY DISSOLVES COMPLETELY GIVING UP A HIGHER AMT. OF H THAN POSSIBLE IN THE USUAL VACUUM EXTN. AT 700DEGREES (SIMILAR TO 10PERCENT MORE PER VOL. OF GASES EXTD. IN VACUUM). AT THE SAME TIME THE DURATION OF THE ANALS. IS 15-20 MIN, I.E. ABOUT 3-4 TIMES SHORTER THAN IN THE USUAL VACUUM EXTN. METHOD (WITHOUT A BATH).

UNCLASSIFIED

USSR

UDC: 681.3:658

LEBEDEV, L. I.**"A Statistical Checking Device"**

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratnye, Tovarnyye Znaki,  
No 45, Dec 73, Author's Certificate No 406199, Division G, filed 3 Jun 71,  
published 5 Nov 73, p 168

Translation: This Author's Certificate introduces a statistical checking device which contains a reversible deviation difference counter, a deviation sum counter, a sample volume counter, flip-flops, switches, OR gates, and a display of the sign and magnitude of the deviation difference. The display input for the number of deviations from the norm on the high side and the input for the number of deviations on the low side are connected through an OR gate to inputs of the deviation difference and sum counters and, through an OR gate and a switch, to the input of the sample volume counter. These display inputs are also connected to the count inputs of the first flip-flop. The outputs of this flip-flop are connected to the controlling inputs of the reversible deviation difference counter whose output is connected through the deviation difference sign and magnitude display to the

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- 83 -

USSR

LEBEDEV, L. I., USSR Author's Certificate No 406199

first inputs of switches whose second inputs are connected to the direct output of a kipp oscillator, while their outputs are connected to the inputs of the first flip-flop. The outputs of the kipp oscillator are connected to the controlling inputs of the counter of deviations from the norm on the high side. The output of the deviation sum counter is connected through a deviation sum indicator to the input of the deviation difference sign and magnitude display, to the input of the sample volume counter, and to the input of a delay line. As a distinguishing feature of the patent, the functional possibilities of the device are extended by introducing a counter of the norm and a random number distribution function generator whose controlled inputs are connected to the outputs of the digital places of the counter of the norm and the counter of the sum. The outputs of the function generator are connected through an OR gate to the count inputs of these counters and the deviation difference counter respectively. The trigger input of the random number distribution function generator is connected through a delay line to the output of an OR gate, whose inputs are connected to the inputs of the norm and the inputs of the number of deviations from the norm on the high and low sides.

2/2

UDC 66.012.1

USSR

LEBEDEV, L. I., MANDRYGIN, Yu. A., KHITROVSKIY, Ye. I., and KALYANOVA, S. A.,

"A Device for Statistically Monitoring the Median Interval and Percent of Rejection"

USSR Author's Certificate, Class G 06 s 15/36, No 331390, filed 22 Apr 68,  
published 13 Apr 72 (from RZh-Avtomatika Telemekhanika i Vychislitel'naya  
Tekhnika, No 3, Mar 73, Abstract No 3 A403 P)

Translation: A device is proposed for statistical monitoring of the median interval and percentage of rejects. The device consists of a control unit, an input unit, an interval counter, a unit for determining the volume of the selection, a histogram presentation unit, a unit for determining the median interval, and indicators. To improve the quality of monitoring of a technological process, the device contains a reject counter-- the input to which is connected to the outputs of the reject intervals of the input device -- and a unit for comparing and indicating actual values of rejection percentage, the median for comparing and indicating actual values of rejection percentage, the median interval with given boundaries, and the result of the preceding selection. The inputs of this unit are connected to the outputs of the damage counter and unit for determining the median interval. To improve the visibility and

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USSR

LEBEDEV, L. I., et al., USSR Author's Certificate, Class G O6 s 15/36,  
No 331390, filed 22 Apr 68

reliability of the histogram presentation, the input of each of the sets of indicator elements in the columns of the histogram display is connected with the corresponding output of the receiving register decoder and through phase coordinating elements with the output of the preceding unit. Two illustrations.

2/2

USSR

UDC: 658.562.012.7

KHITROVSKIY, Ye. I., TURKINA, T. I., LEBEDEV, L. I., MURAV'YEV, V. A.

"A Device for Gathering and Processing Statistical Data"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsov, Tovarnyye Znaki,  
No 31, 1970, Soviet Patent № 283689, Class 42, filed 30 May 69, p 139

Abstract: This Author's Certificate introduces a device for gathering and processing statistical data on the course of a technological process. The device contains a buffer memory and units for normalizing, comparison, storage, control and synchronization, program setting, program processing, signaling, display, and registration. As a distinguishing feature of the patent, the effectiveness of analysis is improved and the technological process is simplified by connecting the output of the comparison unit to the input of the program setting unit, and connecting one input of the signaling unit to the output of the program processing unit, while the other input is connected to the output of the program setting unit.

1/1

USSR

UOC: 534.2

LEBEDEV, L. L.

"Construction of a Streamlined Body of Revolution for Supersonic Gas Flow According to a Given Chord Diagram"

Tr. Seminara po krayev. zadacham. Kazansk. un-t. (Works of the Seminar on Boundary Value Problems. Kazan' University), 1970, vyp. 7, pp 205-209 (VDn-Mekhanika, No 9, Sep 70, Abstract No 9B364)

Translation: The author formulates and solves the inverse aximyrmetric problem in supersonic gas dynamics of supersonic flow of a gas having a predetermined velocity, density and pressure around a pointed body of revolution. Assuming a given distribution of the modulus of the velocity vector along the generatrix of the body of revolution as a function of the longitudinal coordinate, the surface of the unknown body is determined as well as the surface of the attached shock wave beginning from the nose section of the body. The formation of vortices behind the shock wave is taken into consideration. The generatrices of the solid of revolution and of the shock wave are approximately constructed in the form of broken lines made up of rectilinear segments with the aid of the method of characteristics developed by Frankel. G. I. Bogomolov.

1/1

UDC 621.771.25.001.5

USSR

ASTAKHOV, I. G., and LEBEDEV, L. S.

"A Method for Investigating the Process of High-Speed Rolling"  
Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya,"  
1970, pp 274-278

Translation: A description is given of a new high-speed rolling mill, with a maximum speed up to 60 meters a second, which has been installed at the Moscow Institute of Steel and Alloys. A technique has been developed for measuring the power and speed parameters of the process. The first experiments to test the method have been conducted. Two figures.

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USSR

UDC 534.222.2

LEBEDEV, M. A. and RUSAKOV, M. M. (Chelyabinsk)

"Obtaining an Explosion With a High Concentration of Energy"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 1, 1973,  
pp 168-170

Abstract: Results are described of experiments on the head-on collision of clusters of tungsten particles with a density of approximately  $1 \text{ g/cm}^3$ , moving at a speed of 24 km/sec. As a result of the collision, there takes place an explosion with an energy concentration which is more than 50 times greater than the energy concentration in high explosives. 2 figures. 4 references.

1/1

UDC 612.392.61(98)

USSR

AFANASYEV, B. G. and LEPEDOV, M. D., Military Medical Academy imeni S. M. Kirov,  
Leningrad

"Amount of Common Salt Consumed in the Arctic"

Moscow, Voprosy Pitaniya, No 6, 1972, pp 62-65

Abstract: The consumption of salt with food by 133 young men after 2 1/2 years  
in the Arctic was found to be twice as high as in temperate regions. Blood  
pressure, however, changed very little and even tended to decrease. And in 5  
persons who had come to the Arctic with elevated pressure, the latter dropped  
by 5 to 10 mm after 2 1/2 years. The daily urinary output decreased with in-  
creasing time spent in the north. The amount of sodium excreted with urine rose  
and was higher in the winter than in the summer.

1/1

## Analytical Chemistry

UDC 543:547.922

USSR

LEBEDEVA, N. D., Ivanovo State Medical Institute"Physical-Chemical Analysis of Cholestrylcaprylate, Cholestrylcaprinate and Cholestrylpelargonate"

Ivanovo, Izvestiya vysshikh uchebnykh zavodov, Khimiya i khimicheskaya Tekhnologiya, Vol XIV, No 7, 1971, pp 1014-1018

Abstract: Microthermal, differential-thermal and x-ray diffraction studies of cholestrylcaprylate, cholestrylcaprinate and cholestrylpelargonate have been performed previously [G. W. Gray, Molecular Structure and the Properties of Liquid Crystals, London-New York, 1962; I. G. Chistyakov, Kristallografiya, No 8, 79, 1963; I. G. Chistyakov, et al., Izv. VUZ SSSR, Khimiya i khim. tekhnologiya, No 6, 434, 1963]. An x-ray diffraction study has not been made of the cholesteric and smectic liquid-crystalline states of cholestrylcaprylate. The normalized curves and radial distribution curves for both liquid-crystalline states of this ester are presented, and the most probable packing of the cholestrylcaprylate molecules is shown. An x-ray picture of the smectic liquid crystals of cholestrylcaprinate was made with large and small x-ray angles. Additional peaks were discovered on the radial distribution curve. The mutual orientation of the molecules of the three mentioned esters in the liquid-crystal states are shown, microphotographs are presented, and the

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USSR

LEBEDEVA, M. D., Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i khimicheskaya Tekhnologiya, Vol XIV, No 7, 1971, pp 1014-1018

texture of the liquid crystals and phase transitions of the esters are described. The texture of the cholesteric liquid crystals obtained on cooling an isotropic melt is a set of confocal domains. On lowering the temperature further, the cholesteric texture becomes smectic, and twisting of the smectic layers around the principal axis of the domain takes place.

2/2

- 5 -

USSR

UDC: 621.43.011:533+621.5:533

LEBEDEV, M. G., TELENIN, G. F."Interaction Between a Supersonic Jet and an Acoustic Field"Nauch. tr. In-t mekh. Mosk. un-ta (Scientific Works of the Institute of Mechanics, Moscow University), 1970, No 5, pp 88-107 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B405)

Translation: A model is proposed which explains pulsations of a supersonic jet with discrete frequency, and its mathematical description is given. The scheme by which narrow-band pulsations arise and are sustained when an isolated supersonic jet escapes is considered. In this scheme, the supersonic fluctuating jet on the section from the nozzle tip to the region of decay is likened to a resonator. In formulating the mathematical problem, a study is made of the amplitude-phase response of the jet; for this purpose, interaction between the supersonic jet and the external acoustic field is considered. For purposes of simplification, it is assumed that external acoustic fields are two-dimensional. The flow is considered potential, and the linear problem is solved for equations of potentials of

1/2

LEBEDEV, M. G., TELENIN, G. F., Nauch. tr. In-t mekh. Mosk. un-ta, 1970,  
No 5, pp 88-107

perturbations of velocity of the jet and the medium with corresponding boundary conditions. A Laplace transform is used for the solution in the case of the plane problem. Solutions are found for the system of equations, a digital computer being used to compute the perturbations of potentials, components of velocity and pressures. A number of special cases are considered. Graphs are presented for the coefficients of amplification of perturbations of pressure in the jet as a function of the frequency of acoustic waves in cases of antisymmetric and symmetric oscillations for a number of distances from the nozzle tip. A digital computer solution is found for the nonlinear problem of interaction between the jet and acoustic waves running along its boundaries. Yu. F. Dityakin.

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AA0009398

Soviet Inventions Illustrated, Section 4.1. Electrical

232306 AUTOMATIC SIGNAL DISTORTION DETECTOR IN  
SIMPLEX TELEGRAPH operating on the principle  
of analysing voltage phase of outgoing signals and  
current phase in the line. The analyser consists  
of a triode (1) with its base connected to the  
steering transformer (2) and its collector and  
emitter to the signalling transformer (3).  
Interruption of line at the receiving end during  
transmission causes generator (6) to pass fault  
signal to alarm terminals (8).

26.8.67 as 1180419/26-9. P. A. VONTOEEN & M. E. LEMDINE  
et al. (11.12.66) Bul 1/11.12.68. Class 200  
Int.Cl. H 04 b.

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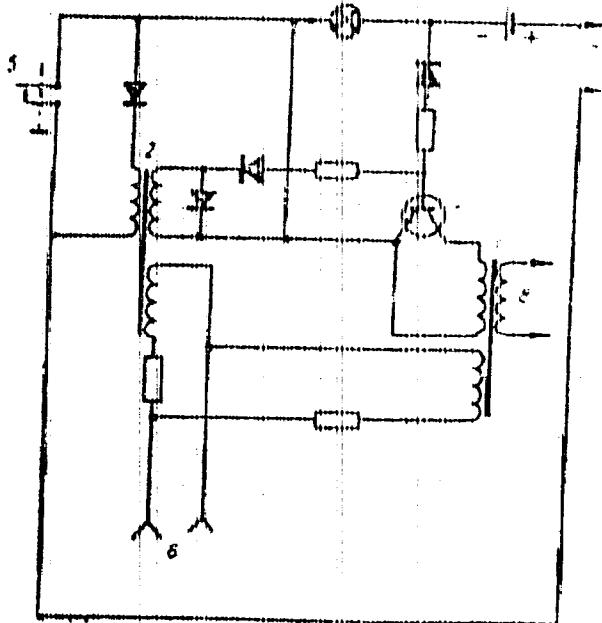
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"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201720017-9

AA0009398

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APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201720017-9"

USSR

UDC 681.332.05

VOSTOKIN, Ye. A., YERSHOV, L. I., ZHURAVLEV, P. A., LEBEDEV, K. P., NOVIKOV, A. I., and TSYBIN, Yu. B.

"Device for Linking a Computer With a Communication Channel"

USSR Authors' Certificate No 341054, Cl. G 06j 3/00, filed 4 May 70, published 5 Jun 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsov, Tovarnyye Znaki, No 18, 5 Jun 72, p 186)

Abstract: The device contains an electronic telegraph receiver and transmitter, a block of keys, and delay circuit flip-flops. For simplification the outputs of the computer are connected to the inputs of the block of keys, whose outputs are connected to the inputs of the electronic transmitter; and the inputs of the control circuits of the block of keys are connected to the outputs of a flip-flop, one input of which is connected to the "trigger" output of the computer; the other, to the transmitter output; the outputs of the electronic receiver are connected to the inputs of the flip-flops, whose outputs are connected to the inputs of the computer, and the "trigger" output of the electronic receiver is connected through the delay circuit to the "clear" inputs of the flip-flops.

1/1

USSR

UDC: 519.21

LEBEDEV, M. A., LINNIK, Yu. V., RUKHIN, A. I.

"Monotonic Convex Matrix Functions of Losses in Statistics"

Tr. Mat. in-ta AN SSSR (Works of the Mathematics Institute of the Academy of Sciences of the USSR), 1971, 112, ch. 1, pp 291-299 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V328)

Translation: The form of monotonic and convex matrix functions is determined, and some of their uses as loss functions in mathematical statistics are indicated. Authors' abstract.

1/1

1/2 024 UNCLASSIFIED PROCESSING DATE--23 OCT 70  
TITLE--APPARATUS FOR THE CHROMATOGRAPHIC SEPARATION OF HIGHLY RADIOACTIVE  
ELEMENTS -U-  
AUTHOR--(02)-LEBEDEV, N.A., TOLSTOY, N.S.  
COUNTRY OF INFO--USSR  
SOURCE--RADIOKHIMIYA 1970, 21(1), 112-19  
DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ISOTOPE SEPARATION, CHROMATOGRAPHIC SEPARATION, RARE EARTH  
ISOTOPE, RADIATION DOSAGE, NUCLEAR SAFETY, CHEMICAL PLANT EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/2203

STEP NO--UR/0186/10/012/001/0112/0119

CIRC ACCESSION NO--AP0127565  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23 OCT 70

CIRC ACCESSION NO--APO127565  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REMOTE CONTROL SHIELDED APP. FOR  
THE ION EXCHANGE SEPN. OF RADIOACTIVE RARE EARTH ISOTOPES PRODUCED BY P  
BOMBARDMENT OF TA, ER, AND GD IS DESCRIBED. THE APP. HAS BEEN USED OVER  
6 MONTHS FOR THE PROCESSING OF SAMPLES WITH A TOTAL ACTIVITY OF LESS  
THAN OR EQUAL TO 1 G EQUIV. RA. THE DOSE ABSORBED BY THE OPERATOR WAS  
LESS THAN OR EQUAL TO 10 MR IN THE WORK WITH 3 G EQUIV. RA.

UNCLASSIFIED

1/2 005 UNCLASSIFIED PROCESSING DATE--09UGT70  
TITLE--ON AREA THEOREMS FOR NON OVERLAPPING FINITELY CONNECTED DOMAINS. II  
-U-  
AUTHOR--(02)-GRUMUVA, L.L., LEBEDEV, N.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 1, MATEMATIKA, MEKHANika,  
ASTRONOMIYA, 1970, NR 1, PP 18-29  
DATE PUBLISHED----70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--TOPOLOGY, MATHEMATIC SPACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1984/0379

CIRC ACCESSION NO--AP0055164

UNCLASSIFIED

STEP NO--UR/0043/70/000/000/001B/0029

UNCLASSIFIED

PROCESSING DATE--09OCT70

2/2 005  
CIRC ACCESSION NU--AP0055164

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. SOME APPLICATIONS ARE GIVEN OF  
GENERALIZED AREA THEOREMS FOR NON OVERLAPPING FINITELY CONNECTED DOMAINS  
WHICH WERE PROVED IN PART ONE OF THE PAPER [1].

B9

UNCLASSIFIED

USSR

UIC: 621.315.592

BEZDETNYY, N. M., GORBATOV, G. Z., ZEYNALLY, A. Mh., and LEBEDEV,  
N. N., Azerbaydzhan State University imeni S. M. Kirov, Baku

"The Photo-EMF Spectral Distribution in SbSI"

Leningrad, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972,  
pp 1189-1190

Abstract: This brief communication is the consequence of an earlier article authored by some of those named above (Bezdetnyy, et al, FTT, 13, 1971, p 1242) in which it was shown that the near-surface illumination of SbSI layers using light from the maximum sensitivity region produces a voltage and the flow of short-circuit currents in the external circuit. These are caused by the bend in the zones at the ends of the specimen. In the present communication, the authors investigate the spectral distribution of the photovoltaic output of the SbSI layers after dividing the specimens into two groups depending on the type of bending in the zones at the ends. The spectral distribution of both groups is shown.

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USSR

UDC: 550.638

LEBEDEV, N. N., GRIGOR'YEV, V. M., KLOCHEK, N. V., KOBANOV, N. I., Siberian Institute of Terrestrial Magnetism, the Ionosphere and Propagation of Radio Waves, Siberian Department of the Academy of Sciences of the USSR

"A Method of Measuring Magnetic Field Strength"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 13, May 72, Author's Certificate No 335652, Division G, filed 17 Aug 70, published 11 Apr 72, p 196

Translation: This Author's Certificate introduces a method of measuring magnetic field strength in accordance with Zeeman splitting of a spectral line. As a distinguishing feature of the patent, precision is improved by converting the left-hand and right-hand circularly polarized components of Zeeman splitting to linearly polarized components, spatially modulating the relative position of the components in the direction of dispersion, and measuring the oscillations of the light flux which are proportional to magnetic field strength.

1/1

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--REACTIVITY OF ALCOHOLS WITH WATER DURING ACIDIC CATALYTIC REACTION  
WITH ETHYLENE OXIDE -U-  
AUTHOR-(03)-LEBEDEV, N.N., SAVELYANOV, V.P., SHVETS, V.F.  
COUNTRY OF INFO--USSR  
SOURCE--TEOR. EKSP. KHM. 1970, 6(1), 111-16  
DATE PUBLISHED----70

SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--METHANOL, ALCOHOL, ETHYLENE OXIDE, ACID CATALYSIS

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1163

STEP NO--UR/0379/70/006/001/011/0116

CIRC ACCESSION NO--APO126585  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NDV70

2/2 011  
CIRC ACCESSICA NO--APO128585  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BINARY MIXTS. MEOH,ROH AND H SUB2  
O,ROH, WHERE R IS ME, ET, PR, AND ISO,PR, WERE TREATED WITH ETHYLENE  
OXIDE IN 0.01-0.03 M HClO SUB4 AND THE FOLLOWING RELATIVE REACTIVITIES R  
SUBMEOH EQUALS K SUBMEOH-K SUBHEOH AND R SUBH SUB4 O EQUALS K SUBH SUB2  
O-K SUBROH DETD.: ME, NEGATIVE, 0.70; ET, 1.20, 0.80; PR, 1.40, 0.87;  
AND ISO,PR, 1.60, 1.10. RELATIVE REACTIVITIES WERE DEPENDENT ON THE  
ACIDITY CONSTS.: R SUBMEOH EQUALS (K SUBMEOH-K SUBROH)/PRMEO.13 AND R  
SUBH SUB2 O EQUALS 0.8 (K SUBH SUB2 O-K SUBROH)/PRMEO.13.  
FACILITY: MOSK. KHIM. TEKHNL. INST. IM. MENDELEEVA, MOSCDW, USSR.

UNCLASSIFIED

USSR

UDC: 532.516

GIRSHIK, B. L., LEBEDEV, N. F.

"The Problems of Oscillation of a Cylinder in a Cylindrical Cavity Filled with an Incompressible Viscous Fluid"

Uch. Zap. Perm. Un-t [Scientific Writings of Perm' University], 1971, No 257,  
pp 8-14 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972,  
Abstract No 12B734, by Yu. G. Balakirev)

Translation: The planar problem of the motion of a viscous, incompressible fluid in an infinitely long, rigid cylindrical cavity in which a rigid cylinder oscillates is solved in bipolar coordinates. The axes of the cylinder and cavity are parallel. The eccentricity changes according to a rule which is fixed (with respect to time). An expression is produced from purely kinematic considerations for the velocity of the fluid, satisfying the conditions of "attachment" (considering the viscosity of the fluid) of the fluid to the surfaces of the cylinders.

1/1

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## Magnesium

USSR

UDC 669.721.372

LEBEDEV, O. A., ANTONOV, A. N., MUZHZHAEV, K. D., and LRONYMEVA, O. N.

"Concerning the Mechanism of Magnesium Loss in Electrolysis"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 52-55

Abstract: An investigation was made to determine which of the two following interaction reactions taking place in the electrolysis of carnallite and magnesium chloride determines the magnesium losses: 1) The interaction of dissolved magnesium with dissolved chlorine, or 2) The interaction of Magnesium drops with gaseous chlorine. All tests were carried out with the so-called "potassium" electrolysis of the following composition (wt%): 15 MgCl<sub>2</sub>, 65 KCl, 19.5 NaCl, and 0.5 NaF prepared from the magnesium chloride from the production of titanium and chemically pure salts. "Chemical" losses were determined according to a method described, with each test being repeated 2 or 3 times. The average results are presented in a table. Some of the tests were conducted in the electrolysis of the same "potassium" content, but with preliminary refining.

1/2

USSR

LEBEDEV, O. A., et al, Tsvetnyye Metally, No 10, Oct 70, pp 52-55

A comparison of "chemical" magnesium losses in refined and unrefined electrolysis makes it possible to approximately evaluate the losses caused by contact emission of impurities on magnesium drops, oxidation of dissolved magnesium on the electrolysis surface, and direct burning of magnesium. The experimental procedure and apparatus are described. Thermodynamic data on magnesium-chlorine interaction reactions and magnesium loss balance are given. The highest magnesium losses apparently occur in liquid magnesium-gaseous chlorine interaction.

2/2

USSR

UDC: 621.373:530.145.6

LEBEDEV, O., GRYAZNOV, Yu. M., CHASTOV, A. A.

"A Liquid Shutter"

USSR Author's Certificate No 237293, filed 13 May 67, published 12 May 70  
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2D272 F)

Translation: This Author's Certificate introduces a liquid shutter for modulating laser emission. To improve photochemical and thermal stability, the shutter utilizes a bromidized phthalocyanine such as copper phthalocyanine dissolved in aluminum bromide in the presence of an acid halide such as acetyl chloride.

1/1

- 52 -

1/2 040

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--USE OF NONLINEAR ABSORPTION TO CORRECT THE RADIATION WAVEFRONT OF  
SOLID STATE LASERS -U-  
AUTHOR-(05)-SUSKIN, M.S., POGURETSKIY, P.P., GRYAZNEV, YU.M., LEGEDEV,  
O.L., CHASTOV, A.A.  
COUNTRY OF INFO-USSR

SOURCE--ZHURNAL PRIKLADNOI SPECTROSKOPII, VOL. 12, APR. 1970, P. 740-742

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RUBY LASER, LASER RADIATION FILTER, NONLINEAR EFFECT, LASER  
BEAM DIVERGENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1317

STEP NO--UR/0368/70/012/000/0740/0742

CIRC ACCESSION NO--AP0124968

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124968  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE USE OF A LOCAL  
NEGATIVE FEEDBACK TO IMPROVE THE SPATIAL AND TEMPORAL CHARACTERISTICS OF  
SOLID STATE LASERS WITH OPTICALLY IMPERFECT ACTIVE MEDIA. THE  
POSSIBILITY OF IMPROVING THE CHARACTERISTICS OF A RUBY LASER WITH A  
BLEACHABLE DYE FILTER IS SHOWN EXPERIMENTALLY. A PRACTICALLY CONTINUOUS  
REGIME WITH A SIMULTANEOUS DECREASE IN BEAM DIVERGENCE FROM 50 TO 10 MIN  
TO 2 TO 3 MIN IS OBTAINED.

UNCLASSIFIED

UPD: 621.375.8

USSR

GRYAZNOV, Yu.M., LEBEDEV, O.L., CHASTOV, A.A.

"A Laser"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyya Znaki,  
No 4, 1970, p 194, patent No 232409, filed 18 Aug 65

Abstract: This Author's Certificate introduces a laser which contains a passive shutter, a working medium and a resonator reflector. As a distinguishing feature of the patent, monopulse energy is increased by placing a telescopic system between the working medium and the passive shutter to broaden the beam of light incident on the shutter.

1/1

- 36 -

1/2 008 UNCLASSIFIED PROCESSING DATE--09 OCT 70  
TITLE--CALCULATION OF NONISOTHERMAL DESORPTION WITH A HEAT SUPPLY -U-

AUTHOR-(03)-BRANDT, B.B., VERANYAN, R.S., LEBEDEV, O.L.

COUNTRY OF INFO--USSR

SOURCE--TEOR. OSN. KHM. TEKHNOL. 1970, 4(2) 196-203

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CALCULATION, DESORPTION, POTASSIUM CARBONATE,  
MONOETHANOLAMINE, SOLVENT, VAPOR PRESSURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1584

STEP NO--UR/0455/70/004/002/0196/0203

CIRC ACCESSION NO--APO112578

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--09 OCT 70

2/2 008  
CIRC ACCESSION NU--AP0112578  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GENERAL METHOD IS GIVEN FOR THE  
CALCN. OF COUNTER CURRENT NONISOTHERMAL DESORPTION OF GAS FROM SOLNS.  
CONTG. A NONVOLATILE ABSORBING AGENT (E.G. K SUB2 CO SUB3 F  
MONOETHANOLAMINE). THE EFFECTIVE TEMP. IN DIFFERENT CROSS SECTIONS OF  
THE APP. AND THE MEAN DEVIATION OF THE SOLVENT VAPORS PARTIAL PRESSURE  
FROM THE EQUIL. PRESSURE WERE CONSIDERED. FORMULAS AND DIAGRAMS ARE  
GIVEN FOR THE OPTIMALIZATION OF THE PROCESS CONDITIONS WITH RESPECT TO  
MIN. HEAT CONSUMPTION. THE ANAL. OF THE RECOVERY OF AG. SOLN. OF  
MONOETHANOLAMINE SATD. WITH CO SUB2 IS PRESENTED AS AN EXAMPLE.

UNCLASSIFIED

1/2 041	UNCLASSIFIED	PROCESSING DATE--27NOV70
TITLE--LIQUID SHUTTER -U-		
AUTHOR-(03)-LEBEDEV, O.L., GRYAZNOV, YU.M., CHASTOV, A.A.		
COUNTRY OF INFO--USSR		
SOURCE--U.S.S.R. 237,293		
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARISHE ZILAKI 1970,		
DATE PUBLISHED--06JAN70		
SUBJECT AREAS--PHYSICS		
TOPIC TAGS--LASER RADIATION, PHOTOCHEMISTRY, THERMAL STABILITY, PATENT, PHYSICS LABORATORY INSTRUMENT		
CONTROL MARKING--NO RESTRICTIONS		
DOCUMENT CLASS--UNCLASSIFIED	STEP NO--UR/0482/70/0001000/0000/0000	
PROXY REEL/FRAME--3002/0091		
CIRC ACCESSION NO--AA0121713		
UNCLASSIFIED		

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 041 CIRC ACCESSION NO--AA0127718

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO INCREASE THE PHOTOCHEM. AND  
THERMAL STABILITY OF A LIQ. SHUTTER FOR MODULATING LASER RADIATION,  
BROMINATED CU PHTHALOCYANINE DISSOLVED IN ALBR SUBD AMID IN AN ACID  
HALIDE, SUCH AS ACETYL CHLORIDE, WAS USED IN THE SEAL.

UNCLASSIFIED

UDC 629.7.036.3:536.46.

USSR

LEBEDEV, O. N.

"Investigation of Rules Governing the Evaporation of a Single Drop of Fuel,  
Suspended in a Gas Stream"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki  
Dispersn. Sistem, 1972--Sbornik (11-th All-Union Conference on Problems of  
the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972--  
Collection of Articles), 1972, p 13 (from Referativnyy Zhurnal--Aviatsionnyye  
i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.15. Resum)

Translation: The process of the evaporation of a single drop of fuel, suspended in a gas stream, is described by the equations of heat transfer and mass balance of the drop, as well as by the equations of heat propagation within the mass of the drop. The solution of the determining degree of the equations is conducted by the difference method with the use of an electronic computer. As a result of the calculations it was established that the processes of the heating and evaporation of drops proceed parallel almost to the end of the phase conversion. And only at the outcome of evaporation does the surface temperature of the drop attain the equilibrium value. With a pressure decrease, the temperature of equilibrium evaporation drops.

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USSR

LEBEDEV, O. N., 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972--Sbornik, 1972, p 13

The author also investigated the influence of the pressure and temperature of the medium, the type of fuel, and the basic parameters of turbulence, upon the evaporation of the drop.

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USSR

UIC 532, \$29.5/.6

BORSHCHEVSKIY, YU. T., KOTEL'NIKOV, V. F., LEBEDEV, O. N.

"Study of the Effect of the Ratio of the Length of a Nozzle Channel to Its Diameter on the Fineness of Atomizing"

V sb. Sudovyye silovyye ustyanovki i mekhanizmy Vyp. 46 (Marine Power Plants and Machinery. Vyp. 46 --Collection of Works), Novosibirsk, 1970, pp 59-66 (from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 B520)

Translation: This article contains a brief survey of papers devoted to the study of the effect of the ratio of the length of the nozzle channel of a jet atomizer to its diameter on the drop dimensions of the atomized liquid. The procedure and results of experiments in which the fineness of atomizing was measured on varying the ratio of the nozzle length to its diameter  $l/d = 2.0-9.12$  are discussed. The drop dimensions were measured by catching them on a smoked plate and measuring the drop impressions under a microscope. Diesel fuel with a density from 0.828 to  $0.857 \text{ g/cm}^3$  and a kinematic viscosity from 3.85 to 4.99 centistokes was used in the experiments. The experimental results are processed with the help of dimensionless variables. It is demonstrated that in the range of  $l/d$

USSR

BORSHCHEVSKIY, YU. T, et al., Sudovyye silovyye ustroystva i mekhanizmy  
Vyp. 46, 1970, pp 59-66.

variation of the ratio  $Z/d = 4.4\text{-}9$  the magnitude of this ratio has little effect on the fineness of atomizing. With a decrease in the ratio  $Z/d < 4.5$  the middle diameter of the drop decreases. The bibliography has 14 entries.

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USSR

UDC 621.436

LEBEDEV, O. N.

"Study of Evaporation of Fuel Droplets Suspended in a Gas Stream"

[Tr.] Novosib. In-ta Inzh. Vod. Transp. [(Works) of Novosibirsk Institute of Water Transport Engineering], No 69, Part 2, 1972, pp 10-20, (Translated from Referativnyy Zhurnal, Aviatsionnye i Raketye Dvigateli, No 10, 1972, Abstract No 10.34.15).

Translation: A study of the evaporation of fuel droplets is based on combined solution of the heat transfer, mass balance and heat propagation equations in a droplet, using the Ural-14 digital computer. In contrast to existing methods, the processes of heating and evaporation of the droplets are studied jointly. The calculations produce an estimation of the influence of a number of factors (droplet dimensions, temperature and pressure of the medium, grade of fuel and stream turbulence) on evaporation of droplets. 7 Figures; 6 Biblio. Refs.

1/1

USSR

UDC 539.1.074.3

BELLE, YU. S., LEBEDEV, O. V., SPIRIN, V. D.

"The Background of Scintillation Detectors and Ways of Decreasing It"

Khar'kov, Monokristally, Stsintillyatory i Organicheskiye Lyumino-  
fory -- Sbornik (Monocrystals, Scintillators, and Organic Lumino-  
phores -- Collection of Works), No 5, 1970, pp 113-155 (from  
Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No  
12, 1970, Abstract No 12.32.1534)

Translation: Research has been conducted on the nature and contribution of various background sources for a detector with an NaI (Tl) crystal with dimensions of 150x100 mm. On the basis of measurements of the contents of potassium and radium in the glass of photoelectric multiplier 1B, photoelectric multiplier 2B, photoelectric multiplier 49, photoelectric multiplier 52, and photoelectric multipliers 56 of various years' models, it was established that the admixture of radium in sodium glass is responsible for 70-80% of the background from these photoelectric

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USSR

BELLE, YU. S., et al, Monokristally, Stainitlyatory i Organicheskiye Lyuminofory -- Sbornik, No 5, 1970, pp 146-155

multipliers. Ways for the penetration of radium into the glass of photoelectric multipliers and other materials are shown. An estimate is made of the contribution of the  $\gamma$ -radiation of radioactive admixtures contained in the material of the crystal, the container, the body of the detector and its shielding, into the detector background. It is shown that the most favorable material for making low-background shielding of large volume is cast-iron shielding 15-20 cm thick. Ways are proposed for further reduction of detector background. 1 figure, 3 tables, 2 bibliographic entries.

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1/3 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--NITRATION OF 1000 DERIVATIVES OF IMIDAZOLE -U-

AUTHOR--(05)-NOVIKOV, S.S., KHMELNITSKIY, L.I., LEBEDEV, O.V., YEPISHINA,  
L.V., SEVOSTYANOVA, V.V.  
COUNTRY OF INFO--USSR

SOURCE--Khim. Geterotsikl. Soedin. 1970, (5), 664-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRIC ACID, IODINATED ORGANIC COMPOUND, IMIDAZOLE, ORGANIC  
NITRO COMPOUND, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/E01 STEP NO--UR/0409/70/000/005/0664/0668

CIRC ACCESSION NO--A20140303

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/3 021  
CIRC ACCESSION NO--APOL40303  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY THE ACTION OF HNO<sub>3</sub> SUB3 OR  
DIFFERENT CONCS. (3, 50, AND 100PERCENT) ON 10DODIMIDAZOLES, IODINE IS  
SUBSTITUTED BY THE NO SUB2 GROUP AT THE 2 POSITION, WHICH IS INACTIVE IN  
ELECTROPHILIC SUBSTITUTIONS IN ACID MEDIUM; 3PERCENT HNO<sub>3</sub> SUB3 DOES NOT  
GIVE ANY NITRO DERIV. WITH TRITODIMIDAZOLES. HNO<sub>3</sub> SUB3-H SUB2 SO SUB4  
ALSO SUBSTITUTES IODINE, BUT AT THE 4(5) POSITION.  
2,4(5),DINITRO,5(4),10DOIMIDAZOLE (I) WAS PREP'D. BY THE FOLLOWING 4  
NITRATION ROUTES: (A) 2,4,5,TRIODOIMIDAZOLE (II) (M. 191-2DEGREES) (1  
G) WAS ADDED TO 40 ML HOT HNO<sub>3</sub> (D 1.32), AND THE MIXT. BOILED UNTIL  
IODINE VAPOR CEASED TO EVOLVE; THE REACTION MIXT. FROM 14 RUNS, COMBINED  
AND WORKED UP, GAVE 8 G I, M. 216-180DEGREES; (B)  
1,2,4,5,TETRAIDOIMIDAZOLE (III) (0.8 G) WAS BOILED W/LTH 50 ML HNO<sub>3</sub>  
(D 1.32) TILL IODINE CEASED TO EVOLVE; IT WENT INTO SOLN., AND A YELLOW  
PPT. OF 1,2,5(5),TRIODO,5(4), NITROIMIDAZOLE (IV) FORMED, WHICH IN TURN  
ALSO WENT INTO SOLN. SLOWLY; WORKUP GAVE 0.2 G IV; (C) REACTION OF  
2,4(5),DIIODOIMIDAZOLE WITH HNO<sub>3</sub> SUB3 IN CONDITIONS ANALOGOUS TO (A) GAVE  
40PERCENT I; (D) SIMILARLY, TREATING 0.43 G 2,3,DI(100,5)NITROIMIDAZOLE  
(V) WITH 20 ML HNO<sub>3</sub> GAVE 70PERCENT I. SLOW HEATING OF 1 G II WITH  
40 ML HNO<sub>3</sub> (D 1.32) GAVE 0.22 G IV, M. 350DEGREES. ADDN. OF 5.7 G  
IV TO 100 ML 10PERCENT KI CAUSED DISSOLN. AND EVOLUTION OF IODINE;  
WORKUP GAVE 1.9 G V M. 225-6.50DEGREES, ALSO PREP'D. IN 55PERCENT YIELD BY  
ADDING DROPSWISE 0.4 ML HNO<sub>3</sub> (D 1.5) TO A COOLED SOLN. OF 4.46 G II  
IN 40 ML CONCD. H SUB2 SO SUB4, DECOMP'D. THE REACTION MIXT. WITH H SUB2  
O, AND WASHING WITH KI SOLN. TO REMOVE IODINE.

UNCLASSIFIED

3/3 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AF0140303

ABSTRACT/EXTRACT--A MIXT. OF 5 G I AND 40 ML HNO<sub>2</sub> SUB3 (D 1.5) WAS BOILED 10 MIN TO GIVE 67PERCENT 2,4,5,TRINITROIMIDAZOLE M. 232-5DEGREES, ALSO OBTAINED FROM II AND III IN 26 AND 15PERCENT YIELDS, RESP., BY SIMILAR TREATMENT. TO A SOLN. OF 3.2 G 2,4(5),VI1000IMIDAZOLE IN 40 ML CONCO. H SUB2 SO SUB4 WAS ADDED DROPHISE IN THE COLD 0.4 ML HNO<sub>2</sub> SUB3 (D 1.5) TO GIVE 1.5 G 2,1000,4(5),NITROIMIDAZOLE (VI), M. 277-800DEGREES, ALSO OBTAINED IN 40PERCENT YIELD BY ADDING 3 ML HNO<sub>2</sub> SUB3 (D 1.5) DROPHISE TO A SOLN. OF 0.5 G 2,1000IMIDAZOLE IN 30 ML CONCO. H SUB2 SO SUB4, THEN HEATING TO 170DEGREES. HEATING VI 20 MIN AT 180DEGREES WITH H SUB2 SO SUB4,HNO<sub>2</sub> SUB3 NITRATING MIXT. GAVE 20PERCENT 4,5,DINITROIMIDAZOLE, M. 187-80DEGREES.

FACILITY: INST. ORG. KHM. IM. ZELEINSKOGO,

MOSCOW, USSR.

UNCLASSIFIED

USSR

LAVROV, N. V.; LEBEDEV, P. D.; et al (Moscow Power Engineering Institute)

"Heat Transfer in a Closed Convective Thermosiphon with an Insert"

Moscow, Teplofizika Vysokikh Temperatur; March-April, 1972; pp 412-5

**ABSTRACT:** The authors present the results of a study of the characteristics of closed convective thermosiphons with inserts operating with liquids having Prandtl numbers from 0.004 to 14.00, in a temperature range from 30 to 430°C, and heat fluxes from 250 to 50,000 w/m<sup>2</sup> at inclination angles of 0 to 180°. The corresponding generalized relationships are obtained for the cases  $t = \text{const}$  and  $q = \text{const}$ , reflecting the effect on heat transfer of the geometry of the thermosiphons, thermophysical properties of the intermediate coolants, and the mode parameters of the process ( $t$  is the average temperature of the wall in the areas of heating and cooling of the thermosiphon, °C;  $q$  is the heat flux from the wall to the intermediate coolant in the area of heating of the thermosiphon, w/m<sup>2</sup>).

The article includes 3 equations, 5 figures, and one table. There are 5 bibliographic references.

1/1

USSR

UDC 536.248.2.001.5

LEBEDEV, P. D., BUYEVICH, A. V., GRIGOR'YEV, V. G., ROSTOVSKIY, A. Z.,  
UVAROV, V. V., and SHKLOVER, L. L.

"On the Question of Condensing Clean Vapor in Tubular Streams of  
Variable Cross Section"

Dokl. nauchno-tekhn. konferentsii po itogam nauchno-issled. rabot  
za 1968-1969 gg. Sekts. Promteplioenergetiki, Podsekt. Sistemi  
i teploobmen, ustroystv (Reports of the Scientific-Technical Conference  
on Summaries of Scientific Research Work for 1968-1969, Industrial  
Thermal Engineering Section, Subsection on Desiccating and Heat  
Transfer Devices), Moscow Power Engineering Institute, 1970, pp. 113-118  
(from RZh-Teploenergetika, No 5, May 70, Abstract No 5690)

Translation: For calculating the effect of variable cross sections  
of tubular stream in the formula for mean KTO (coefficient of thermal  
omission), for the case of condensing clean vapor in countercflowing  
horizontal tubes as proposed by L. D. Berman, a factor is introduced  
which is a function of vapor condensation level. Experiments have  
been made to determine the values of constants in this modified  
formula. Three figures, three references.

1/1

USSR

UDC: 53.07/.08+53.001.5

BARABASH, L. Z., KRYZHANOVSKIY, O. I., LEBEDEV, P. I."A Device for Feeding the Deflecting Plates of a Ring Accelerator"USSR Author's Certificate No 307542, Division H, filed 31 Mar 70, published  
5 Aug 71 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A516 P)

Translation: Rapid discharge of the deflecting voltage from the plates of an electrostatic inflector is extensively used for single-revolution injection in cyclic accelerators. An impulse thyatron is ordinarily used for discharging the inflector capacitance. In the initial part of the acceleration period, the deflection voltage across the inflector must be held close to the zero level. Ordinarily for this purpose the commutating thyatron is artificially maintained in the ignited conductive state through the entire acceleration period. This mode considerably cuts down the life of the thyatron and reduces the reliability of the injection system. This invention proposes a method of eliminating this disadvantage. An electronic switch is added to the primary circuit of the high-voltage rectifier of the inflector supply system to disconnect the rectifier supply immediately after voltage discharge across the inflector. Throughout the

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USSR

BARABASH, L. Z. et al., USSR Author's Certificate No 301542

entire process of rectifier disconnection, the ignited state of the commutating thyratron is maintained by a low-voltage RC circuit connected through a decoupling diode. L. M. Kazanskiy.

2/2

1/2 040 UNCLASSIFIED PROCESSING DATE--23 OCT 70  
TITLE--BRANCHING REACTIONS AND CHEMICAL LASERS -U-

AUTHOR--(05)-BASOV, N.G., MARKIN, E.P., NIKITIN, A.E., ORLOVSKY, A.N.,  
LEBEDEV, P.N.

COUNTRY OF INFO--USSR, UNITED STATES

SOURCE--IEEE J. QUANTUM ELECTRONICS, USA, VOL. QE-6, NO. 3, P. 183-4,  
MARCH 1970, SECOND CONFERENCE ON CHEMICAL AND MOLECULAR LASERS. DIGEST.  
DATE PUBLISHED---MAR 70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CHEMICAL REACTION, HYDROGEN, FLUORINE, AMMONIA, CARBON  
DIOXIDE, CHEMICAL LASER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0075

STEP NO--US/0000/70/000/003/0183/0184

CIRC ACCESSION NO--AT0123847

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--23 OCT 70

CIRC ACCESSION NO--AT0123847  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ABSTRACT ONLY GIVEN, SUBSTANTIALLY  
AS FOLLOWS. THE AUTHORS DISCUSS THE PECULIARITIES OF POPULATION  
INVERSION WHICH OCCUR IN BRANCHED CHEMICAL REACTIONS AND EXPERIMENTAL  
RESULTS OBTAINED WITH MIXTURES H SUB2 PLUS F SUB2 AND HN SUB3 PLUS CO  
SUB2.  
FACILITY: PHYS. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 019

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--STIMULATED ENTROPY TEMPERATURE SCATTERING OF LIGHT IN LIQUIDS -U-

AUTHOR-(04)-KYZYLASOV, YU.P., STARUNOV, V.S., FABELINSKIY, I.L., LEBEDEV,

P.N.  
COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. XI, NO. 2, P. 110-13 (JAN. 1970)

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LIGHT SCATTERING, ENTROPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3007/1090

STEP ND--US/0000/70/011/002/0110/0113

CIRC ACCESSION NO--AP0136510

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136510  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATIONS HAVE SHOWN THAT STIMULATED (ENTROPY) SCATTERING OF LIGHT (STS) CAN BE DUE TO TWO DIFFERENT CAUSES. IT FOLLOWS FROM A GENERAL ANALYSIS OF THE STS PHENOMENON THAT THE STS LINE DUE TO THE ELECTROCALORIC EFFECT SHOULD BE SHIFTED TO THE STOKES SIDE RELATIVE TO THE FREQUENCY OF THE EXCITING RADIATION (STS-I), AND THE STS LINE DUE TO THE DIRECT ABSORPTION OF LIGHT SHOULD HAVE AN ANTI STOKES SHIFT (STS-III). THE AUTHORS REPORT HERE THE FIRST OBSERVATION OF THE STS-I LINE IN LIQUIDS, WITH AN INTENSITY MAXIMUM SHIFTED IN THE STOKES DIRECTION RELATIVE TO THE FREQUENCY OF THE EXCITING RADIATION. THEY HAVE THUS OBSERVED THE STS DUE TO THE ELECTROCALORIC EFFECT. IN THERMAL (SPONTANEOUS) SCATTERING, THIS FORM OF STS CORRESPONDS TO SCATTERING OF LIGHT BY ENTROPY FLUCTUATIONS.

FACILITY: USSR ACAD. SCIIS.

UNCLASSIFIED

USSR

UDC 620.172.85.826

KOLOMITSOV, P. T., LEBEDEV, P. P., Moscow Military Aviation Engineering Academy

"Cyclic and Long-Term Strength of KhN77TiCr and KhN70VMTu Alloys With a Protective Coating"

Kiev, Problemy Prochnosti, No 9, Sep 72, pp 92-95

**Abstract:** The paper presents the results of an experimental study of the effect which a diffusion coating made by chrome-aluminizing in a vacuum has on the permanent strength and endurance of two heat-resistant nickel alloys and the operational endurance of turbine blades made from KhN77TiCr alloy. The results of the experiments were statistically analyzed. It is found that the durability of alloys in long-term and cyclic strength tests can be extended by using a ductile heat-resistant coating of optimum thickness.

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1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP10  
TITLE--CALCULATION AND STUDY OF THE INFRARED ABSORPTION SPECTRUM OF  
THIOHYANTOIN -U-  
AUTHOR--LEBEDEV, R.S., CHUMAKOVA, R.P., YUKHIMETS, V.N., YAKIMENKO, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIL. 1970, 13(1), 29-33

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, IMIDAZOLE, FREQUENCY VIBRATION, HYDROGEN BONDING,  
DIELECTRIC CONSTANT, ORGANIC SULFUR COMPOUNDS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0172

STEP NO--UR/0139/70/013/001/0029/0031

CIRC ACCESSION NO--AT0105248  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11SEP70

2/2 021  
CIRC ACCESSION NO--AT0105248  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRUM (400-3500 CM PRIME  
NEGATIVE) OF THIOHYDANTOIN (1) WAS MEASURED; THE FREQUENCIES OF NORMAL  
VIBRATIONS WERE CALCD. ON THE BASIS OF A MECH. MODEL (SYM. WITH REGARD  
TO THE RING PLANE, GIVING 18 SYM. A PRIME AND 9 ANTSYMS. A DOUBLE PRIME  
VIBRATIONS) AND COMPARED WITH THE EXPTL. ONES. THE FREQUENCIES AND  
ASSIGNMENTS TOGETHER WITH THE KINEMATIC COEFFS. OF I ARE TABULATED. THE  
FREQUENCIES OF ALL INTENSE LINES IN THE SPECTRUM OF I ARE COMPARABLE  
WITH THE CALCD. ONES. THE BANDS AT 3231 AND 3118 CM PRIME NEGATIVE  
(WHICH WERE NOT CALCD.) WERE ASSIGNED TO THE INTRA DM INTERMOL.  
INTERACTIONS. THE EXISTENCE OF AN INTERMOL. H BOND INCREASES IN THE  
SERIES I, RHODANINE, AND HYDANTOIN. ON THE BASIS OF A COMPARISON OF THE  
DIELEC. CONSTS. EPSILON AND THE FREQUENCIES OF CH SUB2 SCISSORING  
VIBRATIONS OF I (EPSILON EQUALS 3), RHODANINE (EPSILON EQUALS 3.06), AND  
2,THIO,2, 4,OXAZOLIDINEDIONE (EPSILON EQUALS 3.28), THE BAND AT 1412 CM  
PRIME NEGATIVE WAS ASSIGNED TO THE CH SUB2 SYM. DEFORMATION VIBRATIONS.  
THE IR SPECTRUM OF I CAN BE INTERPRETED BY CONSIDERING A C SUBS  
SYMMETRY TOGETHER WITH A SLIGHT THE WHOLE AND AN APPROX. C SUB2V  
SYMMETRY TOGETHER WITH A SLIGHT EFFECT OF D SUBSH SYMMETRY FOR THE RING.

UNCLASSIFIED

1/2	009	UNCLASSIFIED	PROCESSING DATE--20 NOV 70
TITLE--ELEMENTALATED, SILICON OR GERMANIUM, KETONES -U-			
AUTHOR--LOZI-PENMAREV, S.V., LEBODEV, S.A.			
COUNTRY OF INFO--USSR			
SOURCE--ZH. OBOSHCH. KHIM. 1970, 40(4), 939+40			
DATE PUBLISHED-----70			
SUBJECT AREA--CHEMISTRY			
TOPIC TAGS--CHEMICAL SYNTHESIS, KETONE, ORGANODERMANIUM COMPOUND, ORGANOLITHIUM COMPOUND, ORGANOSILICON COMPOUND, ISOMERIZATION			
CONTROL MARKING--NO RESTRICTIONS			
DOCUMENT CLASS--UNCLASSIFIED			
PROXY REEL/FRAME--3006/1426			
CIRC ACCESSION NO--APC 1426			
UNCLASSIFIED			

2/2 OC9

UNCLASSIFIED

PROCESSING DATE -- 20NOV78

CIRC ACCESSION NO--AP0135100

ABSTRACT/EXTRACT--(U) OP-0- ABSTRACT. (R SUB3 GE1) SUB2 C:CO REACT EXOTHERMICALLY WITH BULI TO YIELD EVIDENTLY (R SUB3 GE1) SUB2 C:COOLIT, WHICH TREATED WITH ETOH GAVE (R SUB3 GE1) SUB2 CHCOOH; R EQUALS ME, 37PERCENT, & SUB2 85DEGREES, N PRIME20 SUB0 1.4789, D PRIME20 1.1734; AND R EQUALS ET (CONTAMINATED WITH SODC 1,TRIETHYLCERMYL,2, TRIETHYLCERMYLOXY,1,HEXENE) 50PERCENT, & SUB1.5 100-70DEGREES, 1.4641, 1.0802. RECN, WITH LiAlH SUB4 OF THE ABOVE KETONE GAVE 43PERCENT 1,1,BIS(TRIETHYLCERMYL),2,HEXANOL, & SUB1.5 80DEGREES, 1.4582, 1.1528 SIMILARLY, (ME SUB3 SI) SUB2 C:CO AND BULI GAVE (ME SUB3 SI) SUB2 C:COOLIT, WHICH WITH H SUB2 O GAVE 42PERCENT (ME SUB3 SI) SUB2 CHCOOH, & SUB3 86-70DEGREES, 1.4558, 0.8645, WHICH HEATED WITH HGI(SUB2 ISOMERIZED) TO 50PERCENT ME SUB3 SICH:UBUUSME SUB3, & SUB3 56-60DEGREES, 1.4396, 0.8263.

FACILITY: MUSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW,

USSR.

UNCLASSIFIED

UDC: 547.846-547.245

USSR

PONOMAREV, S.V., and LEBEDEV, S.A., Moscow State University imeni M.V. Lomonosov,  
Moscow, Ministry of Higher and Secondary Specialized Education RSFSR

"Bimetallated (Si, Ge) Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 939-940

Abstract: Bis(trimethylgermyl)ketenes with self-heating interact with butyllithium (equimolecular quantities). Subsequent treatment of the resultant products with alcohol gives 1,1-bis(trimethylgermyl)-2-hexanones. The synthesis of 1,1-bis(trimethylgermyl)-2-hexanone also gives a certain amount of its isomer 1-trimethylgermyl-2-trimethylgermyloxy-2-hexene (O-isomer). The interaction of bis(trimethylsilyl)-ketene with butyllithium with subsequent decomposition of the reaction products with water gives 1,1-bis(trimethylsilyl)-2-hexanone. The resultant ketone is completely rearranged on heating over mercuric iodide into its isomer 1-trimethylsilyl-2-trimethylgermyloxy-1-hexene. The reduction of 1,1-bis(trimethylgermyl)-2-hexanone with lithium aluminum hydride gives 1,1-bis(trimethylgermyl)-2-hexanol.

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UDC 541.15' + 541.183.03

USSR

GOLUBEV, V. B., KOLBANOVSKIY, YU. A., LEEBEDEV, S. N., MASTEROVA,  
M. N., POLAK, L. S., Institute of Petrochemical Synthesis imeni  
A. V. Topchiyev, Moscow, Academy of Sciences USSR

"Process Kinetics of the Annealing of Adsorption and Paramagnetic  
Centers Generated by Radiation on the Surface of  $\gamma\text{-Al}_2\text{O}_3$ , as  
Studied by the Monte Carlo Method"

Moscow, Khimiya Vysokikh Energiy, Vol 4, No 5, Sep-Oct 70,  
pp 439-442

Abstract: The Monte Carlo method was used for a kinetic study of  
the annealing of the adsorption and paramagnetic centers formed  
by gamma radiation on the surface of  $\gamma\text{-Al}_2\text{O}_3$ . The following  
initial data were used for computer-aided analysis of the experi-  
mental data by the Monte Carlo method: 1) kinetic curves for the  
thermal annealing of the adsorption and paramagnetic centers;  
2) dependence of the number of radiation-induced defects on anneal-  
ing temperature for the paramagnetic and adsorption centers. The  
trap depth distribution was assumed to be exponential. It was  
1/2

JSSR

GOLUBEV, V. B., et al, Khimiya Vysokikh Energii, Vol 4, No 5,  
Sep-Oct 70, pp 439-442

found that the minimum trap depth does not exceed 4 kT. The total kinetic annealing curve is the result of the superimposition of a large number of exponents on each other, each corresponding to traps with a different depth in the forbidden gap. The annealing kinetics of the adsorption and paramagnetic centers were found to be the same, which argues in favor of the authors' theory that the centers are identical.

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LEBEDEV S. P.

Leningrad MVD

REFINED POLICE STAFFED BY COMMUNIST PARTIES

(Excerpt from article by Col. S. P. LEBEDEV, reporter chief of the Management of Internal Affairs of the Leningrad Main and Municipal Executive Committee, "The Militia Is Taking On Recruits"; Leningrad, Leningradskaya Pressa, Russia, 2 December 1971, p. 1)

The there has recently been a conspicuous qualitative strengthening of our militia (police) personnel. During the last 2 years the Leningrad Main and Municipal Police Detachment has been reinforced with 2,000 young workers from industrial plants and factories and with demobilized servicemen. A majority of them are communists and members of Komsomol.

These people are charged from within, as it were, with intolerance toward violators of order and are prepared at any time to aid a person in danger.

The replacement of police ranks through new recruits is now proceeding simultaneously with the growth of higher-ranking specialists in these ranks. The proportion of specialists with a higher education moved to fill officer positions has more than trebled over the past Five-Year Plan period. The number of workers with a secondary education among the plain-duty policeman has increased in the same proportion. Every sixth Internal Affairs employee is now studying in higher and secondary educational institutions. Indeed, it could not be otherwise, for the most improved equipment is now used by the police.

The chemical and physical laboratories of the scientific-technical division are the site of the most complex study of material evidence through the use of the most up-to-date methods — spectral, spectrophotometric, roentgenostructural, metallographic, and so forth. Our experts are turning up clues that were once only dumb participants of the crime.

The subjects of the judicial cycle — criministics, forensic medicine, and other special subjects to the compulsory areas with combat

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SPPS 55  
18 Dec 72

UDC 536.63;546.77;546.78;537.311.31

USSR

DUKIMER, I. Ya., LEBEDEV, S. V.

"Study of Certain Heat Physical Properties of Tungsten and Molybdenum Near the Melting Point by the Electrical Explosion Method"

Teplofizika Vysokikh Temperatur, Vol 9, No 5, 1971, pp 929-933.

Abstract: Results are presented from studies of the temperature dependence of the heat capacity of molybdenum in the solid and liquid states, as well as the temperature dependence of the resistivity of molybdenum and tungsten. The measurements were performed during heating of metal wires by high density current.

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UDC 533.9.07

USSR

ZUBKOV, I. P., KISLOV, A. Ya., LEBEDEV, S. V., and MOBOZOV, A. I.

"Ion Motion in a Two-Lens Accelerator With 'Closed' Electron Drift"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 5i, No 3, Mar 71, pp 526-533

**Abstract:** Ion trajectories in a two-lens accelerator with closed drift of electrons was calculated, and the distributions of ion current densities in the accelerated channel were measured. The article is a continuation of a description of studies of a high-current quasistationary ion plasma accelerator with closed electron drift. An averaged picture of the motion of the ion component inside the accelerator channel and the region of ionization of the working material (hydrogen) are given. Ion motion was analyzed by two methods: first, ion trajectories were calculated on the basis of experimentally measured distributions of electric and magnetic fields, and then a picture was obtained of the distribution of ion current densities along the channel with the aid of double electric probes. It was concluded from the study that the averaged picture of current density distributions qualitatively agrees with calculations of ion trajectories made on the basis of measurements of electric and magnetic fields in the accelerator

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ZUBKOV, I. P., et al, Zhurnal Tekhnicheskoy Fiziki, Vol 15, No 3, Mar 71,  
pp 526-533

channel. It was also concluded that the interaction of ions with the magnetic field basically determines the geometry of the ion current. As a result of this interaction, the beam moves close to the outer insulator in the region of the first lens; however, the greater portion of the ions generated in the vicinity of the first lens continued to accelerate in the second lens without collision with the wall.

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USSR

UDC 615.217.24.03(047)

DUBINSKIY, A. A., and LEBEDEV, S. V., Chair of Faculty and Hospital Therapy, Sanitary-Hygienic and Pediatric Faculties, Khar'kov Medical Institute

"Clinical Application of Beta-Blocking Agents"

Moscow, Klinicheskaya Meditsina, No 1, 1970, pp 7-12

Abstract: The pharmacology and results of the clinical application of drugs blocking beta-adrenotropic receptors (the excitation of which has a vasodilating effect, reduces the tonus of the ureters and the bronchial musculature, and stimulates the myocardium) are reviewed on the basis of literature data with particular attention to pronethalol (nethalide, alderlin) and inderal (propranolol). Drugs of this type have a strong physiological activity, which is exerted primarily on the cardiovascular system. They are very promising from the standpoint of treatment of cardiac diseases. A number of substances belonging to the class of drugs that block beta-adrenotropic receptors (beta-blocking agents) have been synthesized at the Division of Hormone Chemistry, Kahr'kov Institute of Endocrinology and Hormone Chemistry (I. B. Simon). A systematic pharmacological

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DUBINSKIY, A. A., et al., Moscow, Klinicheskaya Meditsina, No 1,  
1970, pp 7-12

study of the substances synthesized has been conducted since 1962  
at the Chair of Pharmacology, Kiev Institute of Advanced Training  
for Physicians (V. Ya. Gorodinskaya and I. B. Simon; I. J. Simon  
et al). One of the substances synthesized, anaprilin (an analog of  
inderal), is now undergoing tests at a number of USSR clinics (A. A.  
Dubinskiy et al; E. T. Polivanov and N. G. Stepanov).

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1/2 023 UNCLASSIFIED PROCESSING DATE--OCT 70  
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AUTHOR-(02)-DIKHTER, I.YA., LEBEDEV, S.V.

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2/2 023  
CIRC ACCESSION NO--APO107295  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SP. HEAT WAS MEASURED BY A PULSED  
METHOD. W WIRES WERE HEATED FOR A SHORT TIME BY A CURRENT OF HIGH D.  
THE SUPPLIED ENERGY WAS DETD. BY OSCILLOGRAMS OF THE HEATING CURRENT AND  
VOLTAGE DROPS ON THE WIRE. THE TEMP. WAS RECORDED BY THE PHOTDELEC.  
METHOD. SP HEATS OF SOLID AND LIQ. W WERE MEASURED AT  
2600-4500DEGREESK. THE MEASURED VALUE OF HEAT OF FUSION OF W IS (334  
PLUS OR MINUS 16) TIMES 10 PRIME3 J-KG.

UNCLASSIFIED